CLAIMS

1. A process for hydroprocessing a heavy hydrocarbon oil, comprising contacting a heavy hydrocarbon oil in the presence of hydrogen with a mixture of hydroprocessing catalyst I and hydroprocessing catalyst II wherein catalyst I comprises a Group VIB metal component and optionally a Group VIII metal component on a porous inorganic carrier, said catalyst having a specific surface area of at least 100 m^2/g, a total pore volume of at least 0.55 ml/g, at least 50% of the total pore volume in pores with a diameter of at least 20 nm (200 Å) and at least 65% of the total pore volume in pores with a diameter of 10-120 nm (100-1200 Å), and
catalyst II comprises a Group VIB metal component and optionally a Group VIII metal component on a porous inorganic carrier, said catalyst having a specific surface area of at least 100 m^2/g, a total pore volume of at least 0.55 ml/g, 30-80% of the pore volume in pores with a diameter of 10-20 nm (100-200 Å), and at least 5% of the pore volume in pores with a diameter of at least 100 nm (1000 Å)
with catalyst I having a larger percentage of its pore volume in pores with a diameter of at least 20 nm (200 Å) than catalyst II.

2. The process of claim 1 wherein the carrier of catalyst I consists essentially of alumina and/or wherein the carrier of catalyst II consists essentially of alumina and at least 3.5 wt.% of silica, and/or wherein catalyst II comprises 0.1-2 wt.% of a Group IA metal component.

3. The process of claim 1 wherein catalyst II has less than 50% of its pore volume in pores with a diameter of at least 20 nm (200 Å).

4. The process of claim 1 wherein catalyst I and/or catalyst II comprise 7 to 20 wt.% of a Group VIB metal component, calculated as trioxide on the weight of the catalyst, and 0.5 to 6 wt.% of a Group VIII metal component, calculated as oxide on the weight of the catalyst

5. The process of claim 1 wherein the heavy hydrocarbon feed is a feed of which at least 50 wt.% boils above 538°C (1000°F) and which comprises at least 2 wt.% of sulfur and at least 5 wt.% of Conradson carbon.

6. The process of claim 1 which is carried out in an ebullating bed.

7. A mixture of catalysts comprising a

catalyst I which comprises a Group VIB metal component and optionally a Group VIII metal component on a porous inorganic carrier, and 0.5 to 6 wt.% of a Group VIII metal component, calculated as oxide on the weight of the catalyst, on a porous inorganic carrier, said catalyst having a specific surface area of at least 100 m^2/g, a total pore volume of at least 0.55 ml/g, at least 50% of the total pore volume in pores with a diameter of at least 20 nm (200 Å) and at least 65% of the total pore volume in pores with a diameter of 10-120 nm (100-1200 Å), and a

catalyst II which comprises a Group VIB metal component and optionally a Group VIII metal component on a porous inorganic carrier, said catalyst having a specific surface area of at least 100 m^2/g, a total pore volume of at least 0.55 ml/g, 30-80% of the pore volume in pores with a diameter of 10-20 nm (100-200 Å), and at least 5% of the pore volume in pores with a diameter above 100 nm (1000 Å).

with catalyst I having a larger percentage of its pore volume in pores with a diameter of at least 20 nm (200 Å) than catalyst II.

8. The catalyst mixture of claim 7 wherein the carrier of catalyst I consists essentially of alumina and/or wherein the carrier of catalyst II consists essentially of alumina and at least 3.5 wt.% of silica.

9. The catalyst mixture of claim 7 wherein catalyst II has less than 50% of its pore volume in pores with a diameter above 200 Å.

10. The catalyst mixture of claim 7 wherein catalyst I and/or catalyst II comprise 7 to 20 wt.% of a Group VIB metal component, calculated as trioxide on the weight of the catalyst, and 0.5 to 6 wt.% of a Group VIII metal component, calculated as oxide on the weight of the catalyst